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| EXAMINER |
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HARPER, V PAUL

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| ART UNIT | PAPER NUMBER |
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2654

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,947

Applicant(s)

KY, DUNG H.

Examiner

V. Paul Harper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 45-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 45-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 45-66 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this case, the operation of decoding the digital representation is not described in the specification.
2. Claims 45-66 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Examiner maintains that it is well-known in the art that a decoding (interpreted to mean *mapping*) of the digital data representation determining a set of ASCII characters as described in the specification would not work (i.e. a direct mapping of the digital representation of the speech into ASCII as suggested by the example in the specification (p. 9, last paragraph) and argued in the remarks (p. 7, ¶3) is not

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operational for speech recognition). In other words, if the examiner interpretation of the of the decoding and determining steps of claim 45 is correct, the invention would not work to provide meaningful speech recognition. For example, a typical sound card produces 64,000 bits/second (from an 8 bit a/d converter with a sampling rate of 8 kHz), which could directly "map" into 8,000 ASCII characters/second (assuming all the 8 bit binary representations mapped into valid ASCII characters). If the user spoke the utterance "Hello Joshua" which might have a duration of approximately one second, the resulting output from a sound card would be a binary bit stream that could be "parsed" into 8,000 ASCII characters, not 12 as shown in the example. Furthermore, the "mapping" of any given 8 bit group into an ASCII character would be best described as random and not likely correspond to the current speech sound with many of the 8 bit parses not mapping into valid ASCII characters.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 52 and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In these cases the phrase "the user input" lacks antecedent basis.

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Claim Objections

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 51 and 56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this case, there is no teaching in the disclosure as filed as to what the phrases “user input including at least some ASCII characters in the speech” (claim 51) and “user input having at least some ASCII characters in the at least one word of speech” (claim 56) mean. How can the ASCII characters be in the speech?

Given the above rejections, in the following, the examiner will interpret the claims in view of the prior art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 45-48, 54, 55, and 58 are rejected under 35 U.S.C. 102(b) as being anticipated by Hutchins (U.S. Patent 5,208,897), hereinafter referred to as Hutchins.

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Regarding **claim 45**, Hutchins discloses a method for speech recognition based on subsyllable spelling. Hutchins' method includes the following steps:

- receiving a digital data representation of speech having at least one word (Fig. 4A, items 12 and 14; col. 3, lines 16-20, entering a cohesive speech segment);
- decoding the digital data representation (Fig. 4A, item 16);
- determining a set of ASCII characters based on the decoded digital data representation (Fig. 4A, output of item 16);
- grouping together each ASCII character in the set of ASCII characters (Fig. 4A, item 20);
- determining the number of syllables in the speech having the at least one word based on the digital data representation (Fig. 4A, items 20, 28, syllables are determined); and
- confirming that the grouped together ASCII characters in the set of characters corresponds to the speech having the at least one word by matching the determined number of syllables with the number of syllables for the word in a syllables library (Fig. 4A, items 30 and 34; col. 3, lines 25-34).

Regarding **claim 46**, Hutchins teaches everything claimed, as applied above (see claim 45); in addition, Hutchins teaches "the decoding of the digital data representation further includes parsing the digital data representation to extract

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segments of binary bits" (§1.3.1 Acoustics to SubSyllable, cohesive speech segments are processed).

Regarding **claim 47**, Hutchins teaches "determining the set of ASCII characters further includes mapping each segment of binary bits to an ASCII character" (§1.3.2 SubSyllables to SubWords)

Regarding **claim 48**, Hutchins teaches everything claimed, as applied above (see claim 45); in addition, Hutchings teaches "providing the grouped together ASCII characters" (Fig. 4A, ASCII SPELLING to SUBSYLLABLES).

Regarding **claim 54**, Hutchins teaches everything claimed, as applied above (see claim 45); in addition, Hutchins teaches the "matching the digital data representation of the speech having the at least one word to a digital data representation in a waveform library based on at least one of: waveform, frequency, period and amplitude" (§Acoustics to SubSyllables; e.g., col. 7, line 3, pitch; col. 8, line 19, amplitude).

Regarding **claim 55**, Hutchins discloses a method for speech recognition based on subsyllable spelling. Hutchins' method includes the following steps:

- receiving a digital data representation of speech having at least one word (Fig. 4A, items 12 and 14; col. 3, lines 16-20, entering a cohesive speech segment);
- decoding the digital data representation (Fig. 4A, item 16);
- determining a set of ASCII characters based on the decoded digital data representation (Fig. 4A, output of item 16);
- grouping together each ASCII character in the set of ASCII characters (Fig. 4A, item 20);
- confirming that the grouped together ASCII characters in the set of characters corresponds to the speech having the at least one word by matching the digital data representation of the speech having the at least one word to a digital data representation in a library based on at least one of: waveform frequency, period and amplitude (Fig. 4A, items 30 and 34; col. 3, lines 25-34); and
- providing the grouped together ASCII characters in a user library in response to the digital data representation of the speech having the at least one word being identical to a digital data representation in the library (Fig. 4A, items 24, 30, and 34, where, for example, item 24 “contains tables of predetermined spellings of words or parts of words”).

Regarding **claim 58**, Hutchins teaches everything claimed, as applied above (see claim 55); in addition, Hutchins teaches “mapping the digital waveform data

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representation of the speech having the at least one word to the grouped together ASCII characters" (Fig. 4A, AUDIO INPUT to ASCII SPELLING OF WORDS).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 49-53, 56, 57, and 59-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins in view of Gould (U.S. Patent 5,794,189), hereinafter referred to as Gould.

Regarding **claim 49**, Hutchins teaches everything claimed, as applied above (see claim 45), but Hutchins does not specifically teach "receiving the digital data representation of speech further includes receiving a binary bit stream from a sound card." However, the examiner contends that this concept was well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a speech recognition system that uses a sound card to digitize the user input (Fig. 1, item 16, col. 5, lines 11-25, col. 7, lines 1-21).

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically using a sound card to digitized audio input, as taught by Gould, because it is well known as a low-cost and conventional way to input user utterances into a speech recognition device.

Regarding **claim 50**, Hutchins teaches everything claimed, as applied above (see claim 45), but Hutchins does not specifically teach "receiving the digital data representation of speech further includes receiving a digital waveform representation of the speech from a sound card." However, the examiner contends that this concept was well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a speech recognition system that uses a sound card to digitize the user input (Fig. 1, item 16, col. 5, lines 11-25, col. 7, lines 1-21, where the sampled analog signal will necessarily generate a digital waveform representation of the speech, in particular, col. 5, lines 16-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically using a sound card to digitized audio input, as taught by Gould, because it is well known as a low-cost and conventional way to input user utterances into a speech recognition device.

Regarding **claim 51**, Hutchins teaches everything claimed, as applied above (see claim 45), but Hutchins does not specifically teach:

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- a) receiving user input including at least some ASCII characters in the speech having the at least one word;
- b) storing the user input;
- c) and associating user input including at least some ASCII characters with the received digital data representation.

However, the examiner contends that these concepts were well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a system for continuous speech recognition, where Gould's system allows the entry of single letters (ASCII characters) for spelling words associated with spoken input, a) and c) above (col. 2, lines 1-2, col. 4, lines 17-65); and the ability to modify the original utterance to include a correction, b) above (col. 4, lines 29-33).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically providing features, as taught by Gould, because it is well known in the art at the time of invention for the purpose of entering corrections during speech recognition (Gould, col. 4, lines 13-21).

Regarding **claim 52**, Hutchins teaches everything claimed, as applied above (see claim 45), but Hutchins does not specifically teach "wherein the user input is received from a keyboard." However, the examiner contends that these concepts were well known in the art, as taught by Gould.

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In the same field of endeavor, Gould discloses a system for continuous speech recognition; in addition, Gould teaches the entry of text by keyboard (col. 1, line 57 through col. 2, line 6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically providing features, as taught by Gould, because it is well known in the art at the time of invention for the purpose of entering corrections during speech recognition (Gould, col. 2, lines 57-67).

Regarding **claim 53**, Hutchins teaches everything claimed, as applied above (see claim 45), but Hutchins does not specifically teach "wherein the user input received is user auditory input from a sound card." However, the examiner contends that this concept was well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a speech recognition system that uses a sound card to digitize the user input (Fig. 1, item 16, col. 5, lines 11-25, col. 7, lines 1-21; col. 2, lines 1-6, utterance used as input).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically using a sound card to digitized audio input, as taught by Gould, because it is well known as a low-cost and conventional way to input user utterances into a speech recognition device.

Regarding **claim 56**, this claim has additional limitations similar to claim 51 and is rejected for the same reasons.

Regarding **claim 57**, Hutchins teaches everything claimed, as applied above (see claim 55), but Hutchins does not specifically teach the following steps:

- a) displaying a list of closest word matches from the library in response to not finding an identical word match in the library;
- b) receiving a user selection of a word from the displayed list; and
- c) storing the user selected word and associating the letters thereof with the received digital data representation of the at least one word.

However, the examiner contends that these concepts were well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a system for continuous speech recognition; in addition, Gould teaches displaying a list of likely matches, a) above (col. 1, lines 10-25); selecting from the list, b) above (col. 1, lines 19-22); updating the word model with necessary storage, c) above (col. 1, lines 20-26).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically providing features, as taught by Gould, because it is well known in the art at the time of invention for the purpose of entering corrections during speech recognition (Gould, col. 4, lines 13-21).

Regarding **claim 59**, Hutchins teaches everything claimed, as applied above (see claim 55), but Hutchins does not specifically teach "providing the grouped together ASCII characters includes displaying the grouped together ASCII characters on a

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computer screen. However, the examiner contends that this concept was well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a speech recognition system and teaches the use of a correction window displaying recognized words (col. 1, lines 57-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically displaying results, as taught by Gould, because it is well known as a means of correcting misrecognized words (Gould, col. 1, lines 57-59).

Regarding **claim 60**, this claim has additional limitations similar to claim 49 and is rejected for the same reasons.

Regarding **claim 61**, this claim has additional limitations similar to claim 50 and is rejected for the same reasons.

Regarding **claim 62**, this claim has additional limitations similar to claim 52 and is rejected for the same reasons.

Regarding **claim 63**, this claim has additional limitations similar to claim 53 and is rejected for the same reasons.

Regarding **claim 64**, Hutchins teaches everything claimed, as applied above (see claim 55), but Hutchins does not specifically teach "forming a document using a collection of grouped together ASCII characters." However, the examiner contends that this concept was well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a speech recognition system that can be used for entering documents (col. 3, lines 40-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins to allow for the entry of entire documents using speech, as taught by Gould, because it is well known as a convenient means of entering and editing documents (col. 1, lines 34-43).

In addition, Hutchins does not specifically teach "transmitting the document." However, the examiner contends that this concept was well known in the art, as taught by Gould.

Gould further that after dictating a document the user may transfer it to another application (col. 6, lines 27-31).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins to allow for the transfer of the document, as taught by Gould, because it is well known that documents are routinely transferred.

Regarding **claim 65**, Hutchins discloses a system for speech recognition based on subsyllable spellings. Hutchins' system includes:

- a digital data representation of speech having at least one word (Fig. 4A, items 12 and 14; col. 3, lines 16-20, entering a cohesive speech segment);
- a decode digital data representation of speech process operable to receive a digital data representation of speech having at least one word and decode the digital data representation (Fig. 4A, item 16);
- determine a set of ASCII characters based on the decoded digital data representation; and group together each ASCII character in the set of ASCII characters (Fig. 4A, output of item 16);
- a syllable matching process operable to receive the digital speech representation and determine the number of syllables in each word in the of speech having at least one word and verify that the grouped together ASCII characters in the set of characters corresponds to the speech having the at least one word by matching the determined number of syllables with the number of syllables for the word in a syllables library (Fig. 4A, items 18, 20, 28);

But Hutchins does not specifically teach the user of "a display screen operable to display the grouped together ASCII characters." However, the examiner contends that this concept was well known in the art, as taught by Gould.

In the same field of endeavor, Gould discloses a speech recognition system and teaches the use of a correction window displaying recognized words (col. 1, lines 57-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hutchins by specifically displaying results, as

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taught by Gould, because it is well known as a means of correcting misrecognized words (Gould, col. 1, lines 57-59).

Regarding **claim 66**, this claim has additional limitations similar to those in claim 47 and is rejected for the same reasons.

Response to Arguments

7. Applicant's arguments filed 7/13/04 have been fully considered but they are not persuasive.

8. Applicant asserts on page 7:

A. Claim Rejections - 35 U.S.C. 102 and 35 U.S.C. §103
Cancelled claims 23-45 were rejected under 35 U.S.C. §102 and 35 U.S.C. §103 over Hutchins US Pat No. 5,208,897, and Hutchins in combination with Lucas and Gould US Pat No. 5,794,189. New claims 45-46 recite limitations which distinguish the invention from the cited prior art.

The invention claimed in claims 45, 55 and 65 includes *directly converting* a digital representation of speech into ASCII characters. These ASCII characters are grouped into words based on the ASCII space between the grouped letters. Syllables of the digital representation of the speech are determined and used to confirm that the grouped ASCII characters is correct using syllable tables to improve accuracy. [Italics added]

Claims 45, 55, and 65 state that a decoding (not *directly* decoding) operation converts the digital representation of the speech signal into ASCII characters, which is taught by Hutchins (Fig. 4A, item 14, operation of digitizing speech; to output of item 16,

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ASCII spellings; thus item 16 is a decoder converting a digital representation of speech into ASCII characters).

9. Applicant further asserts on page 7:

Hutchins discloses a system for speech recognition based on sub-syllable spelling. Hutchins' voice recognition is solely based on phonetics. In Hutchins sub-syllables are determined based on frames that is distinguished by the interval of vocoids, changing vocoids, frication and silence. Sub-syllable symbols are output that characterizes major and minor phonetic attributes for the sub-syllables. The sequences of sub-syllables symbols are mapped into syllables, and the sequences of syllables symbols into words, based on the predetermined lookup tables. Hutchins fails to disclose directly *converting a digital representation of speech into ASCII characters or grouping the ASCII characters into words*. Thus, Hutchins fails to disclose each limitation suggest all of the claimed elements recited in claims 45, 55, and 65. (Italics added)

See previous argument. Hutchins describes a scheme for decoding digital speech into ASCII characters and the grouping of those characters into words (Fig. 4A, items 28 and 32, results in ASCII spellings of words).

Response to Amendment

The examiner notes that the amendment submitted in paper 15 does not comply with rule 1.121, but if a bona fide attempt is made to comply additional time will be given to enable full compliance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is 703 305-4197. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 703 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

V. Paul Harper

VPH/vph

Donald L. Storn
PATENT EXAMINER
AR 2654